Knowledge Transfer: A case study of a community nutrition education program at a Land-Grant University

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DEDICATIONS

This dissertation is dedicated to my family: Kjersti, Aziz, Adib, and Inti; to my parents in Bolivia, Severina and Luis, brothers and sisters Reynado, Nabil, Luisa and Gabriela; and my parents in-law in the US Jeffrey and Marsha. It is also in memory of my grandparents, Zacarias, Petrona, Damasia, Donald, Raymond and Ethel.

ABSTRACT

The purpose of this study was to investigate the process of knowledge transfer. The setting is a health and nutrition educational program at University of Minnesota Extension. The main research question was how is Knowledge Transfer being implemented in Extension, specifically Educational Supplemental Nutrition Assistance Program?

A case study, mix method design was conducted, including semi-structured interviews with Nutrition Educators (n=15), group interviews with program participants in 15 settings, and observations of program delivery. This study is important as the organization strategically supports the outreach mission of the university.

Findings included emergent themes which were organized into domains. The four domains included: 1. the facilitator, 2. the learner, 3. the content, and 4. the context. Descriptive statistics of observation data was integrated into the analysis. The program facilitator domain describes the facilitator capacities and experiences. Facilitators have a great degree of empathy because of lived experiences that are similar to the learners. Personal characteristics, including being outgoing, and passionate about what they do. The program learner domain describes their participation and engagement. This included learners' attitude, and facilitators' mindfulness that changes occur for learners in small steps. The program content domain discusses the content, including its connection to key nutrition messages based on the program implementation guidelines, the need to adapt content to fit culturally diverse learners' backgrounds and their immediate needs and interests. The program context domain suggests that context matters, including how low income families face barriers to change that are multilayered. These barriers include but are not limited to financial, health, social exclusion. This affects the health and well-

being of participants. Based on these findings, there are practice and theoretical implications for Human Resource Development (HRD).

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CHAPTER ONE

INTRODUCTION

This study examines the process of knowledge transfer experienced in a nutrition education program at the University of Minnesota Extension. Knowledge Transfer (KT) is the process through which individuals, teams, and organizations are affected by the experience of others (L Argote, Ingram, Levine, & Moreland, 2000). In this study, KT in an educational program transcends the individual level to reach program participants, from the university to local communities and back to the university.

In spite of the relevance and growing literature, transfer of knowledge continues to be problematic. Research recognizes challenges with knowledge transfer and estimates that ten to thirty percent of those program interventions are resulting in changes to key outcomes (Cummings & Teng, 2003; Davenport et al., 1998; Drucker, 2001). Moreover, there are gaps in research about how transfer is viewed, studied, and measured, particularly in applied community settings.

Other studies suggest that we need to better understand what factors may be influencing knowledge transfer, learning environments and characteristics, design, delivery, and environments where it's applied. Finally, scholars on KT research have called for efforts to further understand transfer outcomes and sustained changes.

For organizations such as the University of Minnesota Extension (Extension), gaining a greater understanding of the knowledge transfer process is a major concern because it is part of the organization's mission. A clearer understanding of this process

can advance the work of such organizations. Extension has a long history serving Minnesota beginning in 1914, being adaptive in their program delivery in order to meet the needs of its constituents has been a key element of its success; adaptations to changing technology and other resources help to serve ever changing communities. The extension model was forward thinking at that time regarding the needs of local communities. Food production increased and millions were almost certainly saved from pending starvation. However, the increasing gap and disparities between the rich and the poor were widened both at the local level and in the cities that received a constant stream of migrants in search of a better life. Even today, the University of Minnesota Extension is addressing community food and nutrition needs.

This case study will address one program in Extension and explore how the knowledge transfer process happens.

The Program/ Setting of the Case

At the beginning of the twenty-first century we are living in the plenitude of a knowledge society. The rate of knowledge generation is increasing more than ever in our combined histories (L. Argote, P. Ingram, J. Levine, & R. Moreland, 2000; Drucker, 2001), and in the past ten years knowledge generation has accelerated at unprecedented rates. Technological advances, egalitarian education, and social networks are some of the factors that have contributed to the increase. This knowledge creation and transfer bestows unquestionable benefits to society, but also raises concerns about who it benefits and to what end.

The dynamic nature of a knowledge society is not restrained by traditional geographical boundaries. We are living in an interconnected world. Understanding KT calls for non-traditional conceptualizations and requires us to consider who benefits more or less from the new knowledge generation. Contributing to a growing divide among who has access, knowledge generation is a way of exclusion, intentionally or not. These fundamental changes raise interests among researchers regarding the challenge. Today, like never before in history, humankind has the capacity in terms of know-how to respond and answer to the needs of our communities, but we are also experiencing a growing divide.

Human Resource Development (HRD) is a field of study greatly engaged to further understanding the development of human capacities (McLean, 2004; Swanson, 2001). One key goal of HRD field of study, among scholars and practitioners, is to further understand learning and how knowledge is transferred. HRD as a body of literature has overlapped with Knowledge Management in the field of Organizational Studies in this pursuit (Swanson, 2001). The interest in understanding Knowledge Transfer in the field of HRD is critical to further understanding the process of unleashing human capacity.

Universities are among other institutions committed to the advancement of knowledge. It is in their nature to further the search for truth and contribute to the establishment of peace and progress in society. Land Grant Universities were established in the United States with federal support about one and half centuries ago (Morrill Land Grant Colleague Act, 1862). The legislations gave birth to Cooperative Extension

systems across the United States. Their mission has been to promote advancements by engaging local constituents, and foster their economic development in order to respond to the urgent needs of the time for those who need it the most (Morse, 2009). Extension agents, as they were commonly referred, led the development of practical and useful knowledge benefiting local communities (The Smith-Lever Act, 1914).

Extension does not operate in isolation; it is part of a system, connecting, learning, affecting, and being affected by the environment or communities where they are established. Extension hallmark is an active process of knowledge creation and transfer.

As the boundaries of local communities become less defined, KT process is more dynamic and evolving. Extension and local constituents currently collaborate in knowledge generation (University - Community). This dynamic interaction posits dilemmas about how different ways of viewing the world, knowledge, and priorities intertwine. The interaction generates tensions as it responds to University priorities and among the diversity of local knowledge in communities. Extension pragmatically integrates both.

Minnesota is among the healthiest states in the United States, but also ranks high in health disparities (Bruening, Neumark-Sztainer, Loth, MacLehose, & Story, 2011). These disparities are most apparent when considering minority and low-income populations. Minority communities in Minnesota face many interconnecting challenges. In 2005, nine percent of the state's population lived below poverty level, and a large proportion of this population were minority communities. Food insecurity rose to nearly ten percent during the economic recession from 2005 to 2011 (Bruening et al., 2011).

The University of Minnesota is one of the largest public research institutions in the country, and one of few Land Grant Universities located in an urban area. At the time of this writing, Extension is strategizing how to support the outreach mission of the University system, following the forward-thinking nature to respond to the health and nutrition needs of our changing communities.

For the past five years, Extension has delivered nearly four thousand SNAP-Ed (Supplemental Nutrition Assistance Programs - Education) programs a year (Gold, Barno, Sherman, Lovett, & Hurtado, 2013), reaching approximately 70 thousand Minnesotans yearly (Lovett, Sherman, & Barno, 2011). The educational programs outlined ways to improve health and wellbeing; topics included information about physical activity, increased intake of fruits, vegetables, low-fat foods, and calcium-rich foods, and making wise food shopping choices (Van Offelen, Schroeder, Leines, Roth-Yousey, & Reicks, 2011).

The University Extension Educators (EE) led the design and oversaw program implementation and evaluation of the community health and nutrition program. Community Nutrition Educators (CNEs) are paraprofessional employees in charge of program delivery, including the planning and necessary logistical details. Everyone involved in such programs is very committed to improving the health and wellbeing of families. They care about the quality of program delivery and continued improvement to better serve participants.

Problem Statement

Universities have traditionally participated as agents of knowledge creation in our society. Land Grant Universities have been concerned about: 1) The development and advancement of science and knowledge; and 2) As agents of social transformation, transferring this knowledge to communities where they were established, particularly to those communities with less resources and the most need (Rogers, 1995). Understanding how the KT process happens today in our knowledge society is of great interest.

The body of literature on knowledge transfer has grown in recent years, but remains problematic because of an increasing gap in research and practice, particularly concerning the learning design and the environments and context where transfer happens. This is exacerbated by limited understanding of how transfer is viewed, studied, and measured, particularly in applied community settings.

Further understanding of the phenomenon of knowledge transfer is of great interest to the University of Minnesota Extension, which uses dedicated resources from Federal, State, and University funds, to fulfill part of the core mission of the university (Morse, 2009). Understanding more about how this process happens would also benefit similar organizations where extension systems exist and improve the field of study.

Purpose of the Study

The purpose of this research study is to explore and understand how knowledge transfer happens in the University Extension setting, and furthermore, to understand the

key elements which facilitate knowledge transfer. Further purposes of this study are to understand program processes and components such as how Extension Educator and agent capacities (knowledge, skills, attitude, and values) contribute to knowledge transfer within the particular program; and to understand some expected outcomes from the participants' perspective, under what conditions they seem to be applied, and for whom the education program is most effective.

Early on this exploration, there is the sense that KT is very dynamic, highly organic and context dependent (Rogers, 1995). This study highlights practices among organizations that want to improve their efforts of knowledge transfer in similar university extension settings.

Research Question

The question for this research is: How does Knowledge Transfer happen (take place) in the Extension Educational Supplemental Nutrition Assistance Program? How can Extension foster KT or provide the supports to make KT happen?

The study goal is to improve our understanding of program processes and components, such as how facilitator capacities (knowledge, skills, attitude, and values) contribute to knowledge transfer. Moreover, to understand how transfer is received by participants in the program, under what conditions, and for whom the education program or intervention is most effective in contributing to intended outcomes.

Significance of the Study

This study has both theoretical and practical significance. There is a growing body of literature around knowledge transfer, mostly in the management and business

fields as business are concerned to remain competitive, and it remains problematic. Any study that broadens this work is important. Much of the literature around KT has reached the conclusion that we require theories, models, and a way to understand and measure the KT process. Focusing on the need to explore some key factors would provide understanding into how the KT process happens.

In a practical sense, we live in an increasingly unequal world, with extremes of wealth and poverty generating disparities. Health disparities which exist in local Minnesota communities have negatively affected the health and wellbeing of low-income families. Extension prioritizes collaborative work to address practical urgent needs. Increasing our understanding of how knowledge transfer happens, and what factors contribute to long lasting effects, is important.

This research is significant because it contributes to the understanding of KT at University Extension Programs. Moreover, an improved understanding would help universities develop the capacities to improve and facilitate this transfer process which would ultimately benefit society.

Definitions

For the purpose of discussing knowledge transfer, the following definitions are suggested to establish a shared understanding of the key terms referred to in this study:

Knowledge: A fluid mix of framed experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originated and is applied in the minds of knowers (Davenport et al., 1998).

Justified true belief (Nonaka, 1994).

Knowledge Transfer: How knowledge acquired in one situation is applied (or fails to apply) to another (Singley & Anderson, 1989).

The communication or shared understanding or knowledge (Brown & Duguid, 2001).

Transfer is rare, and its likelihood of occurrence is directly related to the similarity between two situations (Detterman & Sternberg, 1993).

Effective transfer requires a sufficient degree of original learning (Bransford & Schwartz, 1999).

The degree to which trainees effectively apply the knowledge, skills, and attitudes gained in a training context to the job (Wexley & Baldwin, 1986).

Learning: Process whereby knowledge is created through the transformation of experiences (Kolb, 1984).

The capacity to gain insight from one's own experience and the experience of others and to modify the way one functions according to such insight (Shaw & Perkins, 1993).

Barriers to KT: Impediments to a KT project that inhibit the expected transfer of knowledge (Szulanski, 2000).

Knowledge Management (KM): A conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance (O'Dell & Grayson, 1998).

Qualifications of the Researcher

At the time of the study implementation, I am a research associate at the University of Minnesota Extension. I have collaborated in studies and evaluation work in a wide range

of programs, including international, national, and state wide settings. I am currently involved in two longitudinal randomized control studies funded by USDA and NIH in the United States. My current efforts focus on participatory approaches to understanding community engaged research. In the past, I worked at Nur University in Bolivia where I was engaged in Social and Economic Development with diverse indigenous communities.

My interest in the study of knowledge transfer was influenced by my early experiences with my parents. They worked in non-governmental organizations (NGO) in Bolivia, sharing knowledge and skills on topics such as agriculture, livestock, health, weaving, and knitting, within indigenous communities. Fast forward to my studies at Nur University, an educational organization widely known for its social and economic develop framework. During my studies I worked as a researcher at the research and social development unit. There, I worked collaborated on poverty reduction initiatives, carrying out program evaluation and organizational development interventions within NGO's for initiatives funded by the Bolivian government and international development agencies. Several years later, during my graduate studies at the University of Minnesota I have had opportunities to learn and apply concepts of knowledge transfer. The Extension system is widely known as model for knowledge diffusion, and has long tradition for reaching underserved communities.

Delimitations

The focus of this study is limited to Community Nutrition Education and participants from fifteen community sites across Minnesota.

Summary

This research study aims to understand knowledge transfer processes using a mixed method, case study design. In this chapter, I have laid the background and issues around knowledge transfer and its importance. I have presented an introduction, a statement of the problem, theoretical perspectives underpinning the study, the purpose, and the research question. In addition, I have presented definitions of key terms and relevance of the study to the field of Education. In the following chapter, I will present a thorough review of academic literature.

CHAPTER TWO

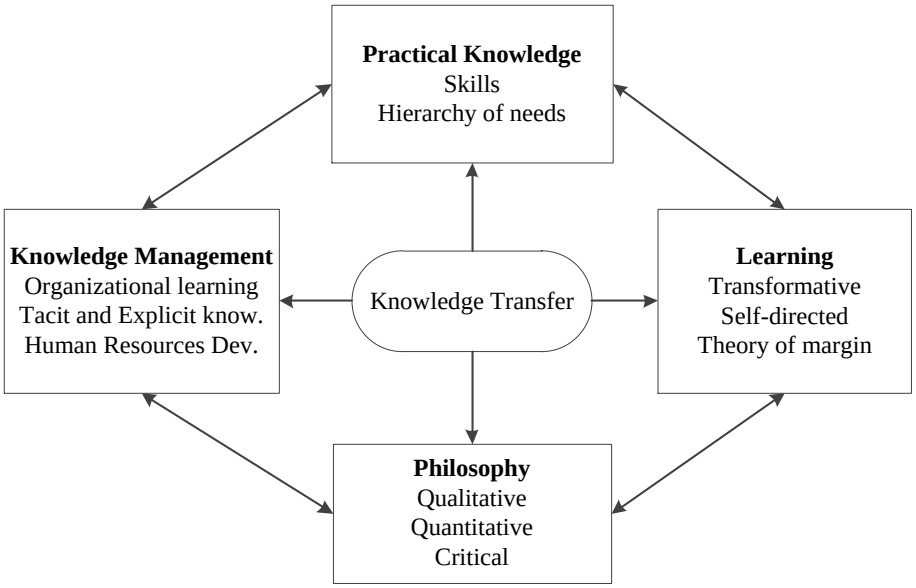
LITERATURE REVIEW

The following chapter presents a discussion of Knowledge Transfer (KT) and how this is accomplished at the University of Minnesota Extension. Nonaka's (2000) model of knowledge creating was used as a guide to the discussion of knowledge transfer (L. Argote & Ingram, 2000) and developments for this study. First, this chapter will discuss KT and the theoretical framework. Second, it will review the literature of key concepts, such as learning, barriers to learning, practical knowledge, and Extension. The main issues, theories, and philosophies will be discussed.

Knowledge Transfer

Literature review covers tacit and explicit knowledge, learning, organizational learning, practical knowledge, and how knowledge transfers to communities from university programs. KT is specially designed to improve community health and well-being.

Figure # 1. Key Literature Review



The definition of Knowledge Transfer in this study is “learning indirectly from the experience of others” (L Argote et al., 2000).

KT has been studied in a variety of ways in organizational science, business, education, and related literature. The terms, “knowledge transfer” and “learning transfer,” are somewhat ambiguous, and can therefore be focused on for different reasons across different fields. A brief review of literature focusing on learning, and knowledge transfer is first described.

Conceptualizing Knowledge Transfer

The study and conceptualization of KT dates from about one hundred years ago . Its earliest development is connected with cognitive psychologists (Woodworth & Thorndike, 1901) focusing on the study of the transfer of learning and suggested that individuals would transfer learning in one context to apply in another. In brief, Thorndike believed that transfer of learning occurs when the learning source and learning target share common complex skills, which were presumed to consist largely of a configuration of basic learning skills.

At the individual levels, how knowledge acquired in one situation applies [or fails to apply] to another (Singley & Anderson, 1989). Singley and Andersen (1989), point out to that in order to understand transfer, one must have detailed theories of both learning and performance. Transfer is regarded as a complex, higher order phenomenon. The focus remains on learning and how well-specified theories of learning and performance can explain transfer. The underlying logic is that one must understand the outcome of a transition before understanding the transition itself. According to Thorndike (1901), the mind was composed not of general faculties but rather of specific habits and associations,

providing a person with a variety of narrow responses to specific stimuli. The problem is that no two situations are identical (Thorndike, 1901). Furthermore in the case of Extension educators, how can they be effective to transfer knowledge within diverse communities and different settings?

Knowledge is complex; the way it is transferred further adds to the complexity. More contemporarily, KT is understood as the process through which one unit is affected by the experience of another (L Argote et al., 2000; Linda Argote, 2013). This study of KT has been of continued interest. Two key components remain problematic in the literature: Understanding how learning originates; and understanding the expected outcomes, given the diversity of conditions.

The following section will reflect on relevant learning theories: Andragogy (Knowles, Holton III, & Swanson, 2012); Self-directed Learner (Knowles, 1975; Tough, 1971); and Transformation Learning Theory(Mezirow, 1981, 2000)).

The Process of Learning

Knowles (1968) states andragogy is "the art and the science of helping adults learn" (p. 351). It is based on five assumptions regarding how adults learn (Caffarella, 2002; Caffarella & Clark, 1999).

First, as a person matures Caffarella (1999) describes, the self-concept of the learner moves toward a self-directing human being. Second, an adult accumulates a growing reservoir of experience. Third, the readiness to learn is related to the applicability of the new knowledge in practice. Fourth, the learners are interested in the immediate application of the new knowledge, for example, problem-centered instead of

people-centered. Finally, adults are motivated to learn from internal factors rather than external ones.

Self-directed Learning

Self-directed learning is learning by doing, an active process in which learners find and use the information by their own sense of independence. This perspective has certainly impacted the development, implementation, and evaluation of educational programs that engage adults.

The purposes of this approach to learning are: First, to enhance the ability of learners to be self-directed in the learning; second, to foster transformation as central to self-directed learning; and third, to promote emancipatory learning and social action. Furthermore, the goal of educators is to help learners in a formal or informal context, to plan, execute, support, and evaluate their own learning (Houle, 1961; Tough, 1971). Self-directed learning has been applied in formal and informal educational programs (Knowles, 1970).

Theory of Knowledge and Learning

In order to understand individual human beings, their behaviors and their interactions, we need to understand how we learn and how we use what we have learned (Mezirow, 2000). Moreover, Yang (2003) claims three facets of knowledge: Perceptual Knowledge, which "refers to personal kinesthetic understanding of the world through direct experience and involvement in the particular situation;" Conceptual Knowledge, which "indicates abstract concepts and a scheme of interrelated concepts that may be transferred across situations;" and finally Affectual Knowledge, which is an "individual's

sentiment attached to a certain object" (p. 110).

The main argument of the holistic theory of knowledge and learning is that it explains the interrelation of the three facets. From this perspective, it is possible to re-conceptualize the theories of learning and development; this explains why some theories are closely related to the conceptual knowledge, which is the knowledge of rationality, referring to the mind; perceptual knowledge, which is the knowledge of experience, referring to the body; and finally affectual knowledge, which is the knowledge of meaning, referring to the heart.

Affectual knowledge is an individual's sentiment attached to a certain object, for example the connection to work, working in a nonprofit organization, fighting for justice, and others brings a positive feeling of contribution to the social progress. (Freire, 1970). Affectual knowledge influences attitudes about learning and motivation which is suggested as one key factor in Andragogy (Knowles, 1968).

Learning Process

Strong interest and learning didactic includes skills and practice. In both cases, the learners are calling for ownership of the learning and to be an active participant of the learning. From a self-directed learning approach, the role of the educator or facilitator is to help learners in a formal or informal context; to plan, execute, and evaluate their own learning (Knowles, 1975; Tough, 1971). Learners know what they want to learn; they might need some scaffolding throughout the learning process but the interest and capability resides in the learner (Knowles, Holton, & Swanson, 1998).

Caffarella (2002) suggests that education and training programs promote three

kinds of change: At the individual level, the acquisition of new knowledge, building skills, and examination of personal values and beliefs; at the organizational level, resulting in new or revised policies, procedures, and ways of working; and finally at the community and social level, allowing for differing segments of society (p. 11). These changes are part of a process, change is a process through which people and organizations move as they gradually come to understand, and become skilled and competent in the use of new knowledge (Caffarella, 2002).

Barriers to Learning - Theory of Margin

The common barriers for learners are time limitations and responsibilities. These are important elements for many theories, i.e. Theory of Margin (McClusky, 1963), Andragogy (Knowles, 1968), and others. The Theory of Margin can be exemplified in the following equation: Margin = Load / Power. The load is represented by school assignments, family responsibilities, work, and other responsibilities. The power represents the time, personal energy, and others. The increasing load over time becomes a barrier to learning.

For some learners, the teaching method may be a barrier; that is, for example, the overuse or underuse of teaching techniques for low literacy participants in instruction, or lack of organization by the mentor. Barrier is explained in theories such as Andragogy and self-directed learning. Andragogy suggests that "an adult accumulates a growing reservoir of experience, which is a rich resource for learning" (Merriam and Caffarella, 1999, p. 272). When the facilitator does not build on the previous experience of the learner, the learner is less connected.

"Theory of Margin" (McClusky, 1974) can be applied to the SNAP-Ed program

in the sense that participants in educational activities acquire the necessary knowledge and skills through everyday life, and enrich their lives (Hiemstra, 1981). Underserved populations face individual and environmental constraints (load) that are harder to overcome without supports and resources (power).

According to McClusky (1974) “load” is the self and social demands required by a person to maintain a minimal level of autonomy, and “power” is the resources, such as abilities, possessions, etc. In this relationship, a person can be in command of coping with load.

The load-power ratio changes and adjusts with changes in the power or load factors. In this formula, (McClusky, 1974) states for margin (M), and places designations of load (L) in the numerator and designations of power (P) in the denominator (M = L/P). McClusky (1974) further divides load into two groups of interacting elements, one external and one internal. The external load consists of tasks involved in normal life requirements (family, work, community responsibilities, and so forth). Internal load consists of life expectancies developed by people themselves, such as aspirations, desires, and future expectations. Power, as previously mentioned, consists of a combination of such external resources and capacities as family support, social abilities, and economic abilities. It also includes various internal acquired or accumulated skills and experiences contributing to effective performance, such as resiliency, coping skills, and personality. Therefore, a person's performance will be a function of various loads dimension and values, as well as a capacity to carry the load .

Finally the theory of margin considers that learners have a unique set of needs; thus, it is important for community-based education programs to include the

characteristics of learners. To effectively meet these needs, educators must understand the cultural, socioeconomic, and psychological elements of this population. They must also examine trends in participation and adapt programs to meet the changing needs and expectations of these learners. Hiemstra (1998) writes that, "we must find ways to help rediscover, reinvigorate, and reactivate their latent interests and talents they never thought they had" (p. 9).

Program development's central ethical responsibility should reflect on whose interests are represented and negotiated in the planning process. I believe that program development has an ethical obligation to foster a substantively democratic planning process, which means that real choices are put before all the stakeholders in the program (Wilson & Cervero, 1996). Along with this, Wilson and Cervero (1996) argue, the ethical stance is that all people who are effected by the program should be involved in the real choices of constructing such programs.

Critical and Transformative Learning Theory

Knowledge is not value free; it always expresses an interest. Technical knowledge fulfills the interest of control, and practical knowledge fulfills the interest of understanding and agreement on norms, value, and meaning (Peter & Luckmann, 1966; Polanyi & Sen, 2009; Tsoukas, 2003).

Critical theory is related to increase awareness and knowledge of individuals about the contradictory conditions (frozen ideologies, power structures) of action which are distorted or hidden by everyday understandings (Mezirow, 1981). Critical theory declares that all men and women are potentially active agents of change in their social world and their personal lives; "they are subjects rather than objects, of socio historical

processes, which make these social actors protagonists of history" (Comstock, 1982, p. 171). Their goal is the self-conscious practice that liberates humans from ideologically frozen conceptions of the actual and the possible.

Critical theory views society as a human construct (Kemmis, 2001) where the reality is altered through people's progressive understanding of historically specific processes and structures, where humans change themselves by reconstituting their society. According to this theory, the relationship of the knower and the known is subject – subject facilitators and participants are mutually shaped by each other, and the goal is to elucidate possible paths for action that challenge and change social structures.

Critical theory is concerned about an underlying social system of oppression, and that certain groups in any society are privileged over others. Their privilege constitutes an oppressive force that is more powerful when their subordinates accept their lower social status as natural, necessary, or inevitable (Freire, 1998). People with lower social status in society become accustomed to the everyday pattern of life. They understand their position in society in terms of bad luck, as part of how life is. Recognizing that the limiting situations can be changed is a key element of critical theory. People want change, but they do not know what they need, or they are afraid of the system of oppression. Although there are systems and structures that privilege certain groups, these systems were built by the people and the society, which can be modified (Mezirow, 1981).

Practical Knowledge

Lewis (1994) suggests that a program which focuses on a modern society must confront the fact that practical skill is a passport to successful participation in society.

Practical knowledge translates to proficiency in the work environment, competence in the arts and crafts, and success with the internal personal callings and motivations in life.

Decades ago, this was suggested by Dewey when he discussed education and democracy. The perspective at that time did not conflict with the importance as long as practical knowledge was not limited to gaining skills which were needed and required by industry. Indeed, it is possible to see the integration of learning in every moment of life, for example, when doing chores at home, in the field, in the farm, at work, in the office, and in other environments. As individuals we see that jobs are a part of our everyday lives. Furthermore, these jobs can be richer and more creative if they are combined with critical and analytical thinking skills, for the progress of the individual, family, and society.

Practical Skills

Hinchliffe (2002) discusses three different approaches when talking about skills, namely: Behaviorists, art/craft (in philosophy techniques), and situational understanding.

When referring to the behaviorist approach, skill is understood as a "series of operations, capable of repetitions, with an outcome that is measurable" (Hinchliffe, 2002, p. 189). Furthermore, skills can be simple or highly complex, and can demand a great level of care and intelligence. In this approach the personal characteristics and qualities of the learners are not considered, and skills are outcome-driven instead of process-driven. The misconception about this approach is that it assumes the successful performance of a skill can be assessed in a context-independent way (Hinchliffe, 2002). Under this approach the performance of the skills will depend not only on whether particular techniques have been mastered, but also on whether the appropriate context has been

understood (Hinchliffe, 2002).

The art/craft approach is based on Aristotle's contribution to instrumental reason. In this approach, technique can be interpreted in terms of craft-skill, in which art/craft can be understood as "reasoned capacity to make" (Hinchliffe, 2002, p. 192). Skills can be understood as practical implementation of methods and procedures. In this approach art/craft is contrasted with luck, chance, and contingency. The idea is to have certain control and management over future contingencies. Some of the characteristic of this approach are that the skills are transferable and art/craft can be used in a variety of situations with results that can be reasonably expected. Another characteristic is that it is teachable; the method can be transferred from person to person. The critics of this approach are concerned about separating "knowing that" and "knowing how," and suggest that any display of knowledge is a combination of both (Hinchliffe, 2002, p. 193).

The third approach is situational understanding; it is directed toward an "interpretative understanding of a series of actions, oriented to production of define outcome" (Hinchliffe, 2002, p. 194). Skills contribute to see similarities and differences between settings to modify one's competencies. Skills can be seen as art, as the integration of a series of techniques and knowledge in order to achieve some accomplishment. Characteristic of this approach include: Practice is grounded in interpretation, so in order to improve, practice requires improving the interpretation; there is no objective interpretation; practice involves being able to respond to a situation as it happens. In order to facilitate practice, it needs an agent with the appropriate capacities for facilitating situational understandings.

In situational understanding, it is important to distinguish two kinds of transfer. First, in cases where techniques are used in the same way though in different contexts; and second, in which the agent uses situation transfer (Hinchliffe, 2002). Criticism of situational transfer suggest that it is procedure which been transferred, rather than skill. On the other hand, if the procedure has been altered in some way then it must be a different process in each case, so again no transfer has occurred.

There are also arguments about the wide gap between the skill learned in a program and its use in every life. From this perspective, the program is seen as artificial, which does not teach other life skills that participants will use every day. In this context the program tries to bridge the gap between program and practice environments.

Evidence Based - A Positivistic Approach

"Evidence Based" programs are highly regarded. Evidence based approaches can be very useful because they can help to communicate key outcomes and impacts; understand the connection of cause and effect among program components; and to determine the kind of information needed (Campbell, 1984; MQ Patton, 1997).

The basis of the evidence-based approach is a positivistic one. The purpose of this approach is to try to describe attributes, explain, and predict facts of the phenomena through a standard method. Under this approach, for example, the selection of the problem (objectives or hypothesis), finding a sample, determination the appropriate device to collect data, collecting data (generally using a randomized control trials), analysis of the data, and the interpretation of findings, are common components in the program evaluation (MQ Patton, 1997).

In more detail, the problem is researchable with help of the literature review, and aims to explain the nature and relationship between variables. The sample is the objects to be studied which are picked from a population.

The data collection devices are the tools that serve as the interface from the object of study and the subject, for example inventories, questionnaires and interviews, either structured or instructed, and observational rating scales. The data analysis may describe characteristics of the sample or infer about the population being studied.

Important assumptions are: 1) The events are ordered and can be discovered through the empirical mode of inquiry, meaning that out there 'live' events are happening that can explained and related through research. 2) There are cause and effect relationships within the physical and social orders. The events are linearly liked (linearity in a broad sense) that can know the effect, and through research find out the cause. 3) Reliable instrument for assessment. 4) Participants responders are honest. 5) Variables are measurable, using different types of tools. 6) Measurements are generally accurate. 7) Measures are valid for what is intended. 8) The phenomena of study can be divided into dependent and independent variables.

Qualitative Inquiry

Qualitative research and evaluation aims to understand the meaning and essence of lived experiences. The process of finding meaning, and what it means to be human, is attained through methods such as hermeneutics, historical, phenomenology, and ethnography. In brief, hermeneutics focuses on interpreting the written word. Phenomenology focuses on understanding our lived experiences. History focuses on the

analysis of episodes in different moments in time, and Ethnography, supported by Anthropology, concentrates on a study of culture.

Qualitative inquiry regards the world as always changing and sees the value of re-understanding phenomena. Researchers using an interpretative method assert that knowledge is created by agreement within a social and historical context.

Qualitative inquiry considers the particular historical, cultural, and familiar context in which participants create multiple realities and different faces of the truth. From this perspective, qualitative inquiry finds that multiple truths are inseparable and rich; in the search for these truths, interpretative inquiry does not intend to generalize its findings.

An important contribution of an Interpretative Inquiry community education is the deep understanding of the participants—greater understanding of participants' internal motivations, strengths, challenges, and possible contributions for participation in the community based programs. Programs can actively incorporate their perspective. For example, immigrant participants in the nutrition education programs bring rich life experiences. The program can recognize their strengths and understand their challenges. It is important to meet these participants where they are.

Contributions to education including training and development, coaching, and mentoring are consistently increasing, providing alternative approaches to understanding phenomena. For example it could be used in estimating investments in Human Capital (Schultz, 1961), though it is problematic to calculate and isolate the multiple interrelations in the education programs. The contribution of qualitative inquiry would

provide an alternative meaning of the initiatives that would complement the quantitative one.

The perception of the participants is that they are also taken into account, along with their families, their lives, and their history. This inquiry is relevant in community education programs because the subjects of the research in many cases are interconnected. For instance, among communities that share cohesive values where everyone knows each other, there are power influences, and in many cases the participants have deeper motivation to participate.

In HRD and Adult Education research, it is useful for research findings to be applied to different scenarios. However, because of the historical and contextual consideration of the truth for interpretative types of research, the findings in this type of research won't be applicable to other settings.

Another limitation in HRD and Adult Education is that researchers knowledge, and familiarity to the methodology (interpretative type of research). Because of the high level of interpretation, it is possible to have biased interpretations if the researcher is not very familiar with the methodology.

Empowerment and Participatory Approach

Participatory approach has the aim of "achieving program success by providing program stakeholders with tools for assessing the planning, implementation, and self-evaluation of their program…" (M. Patton, 2005)

Patton refers to ten principles in order to differentiate empowerment evaluation, namely: 1) Improvement; 2) Community ownership; 3) Inclusion; 4) Democratic

participation; 5) Social justice; 6) Community knowledge; 7) Evidence-based strategies; 8) Capacity building; 9) Organizational learning; and 10) Accountability. These principles are interdependent, and their effects are seen at different levels, from individuals to organizations to communities (Pattton, 2002).

Patton (2002) raises relevant questions regarding evidence and impacts when discussing a participative framework. He states that, when thinking about empowerment evaluation, it is important to consider "to what extent one can attribute these changes [participant narratives] to the empowerment evaluation" (p. 410). Patton elaborates about the need to clarify sustained outcomes and focus on the quality of evidence that supports empowerment evaluation.

King (1998) explains how Participatory Approaches were evident and informed by the progressivism movements, applied social research developments, and collaborative action research. King (1998) also refers to certain aspects that make participatory approach work, namely, it requires high levels of interpersonal and organizational trust, creating a shared meaning of their experiences over time, and addressing the power structure within which they are working (King, 1998).

Knowledge Management and Learning Organizations

Knowledge Transfer (KT) is at the core of the concept of learning organizations, particularly as organizations become more competitive and dynamic. Organizations must be capable of adapting to appropriately attend to the communities they serve. In this context, work is considered an important but problematic aspect in life, and the condition includes the turbulent economic situation.

Learning organization scholars argue about the different perspectives of the

learning organizations, and critique a single, managerial approach, based on the experiences in the United States. Scholars suggest an approach that would consider the educational and humanistic dimension which is central to the European social model. In this context, it is important to look for agreement among shared meanings and interests regarding how businesses can operate within the competitive environment while also enhancing the quality of life and learning at work (Senge, 1990).

Argyris and Schön (1999) present a model for understanding the tensions within learning organizations, in which the complexity of the tasks facing managers of the modern organizations. First, give shape to organizations to follow strategic direction, and second to reconcile individual idiosyncratic behaviors and learning with that of orchestrating, and suggest that the key to organizational learning lies in the capacity to understand and see how the different and often seen as opposing dimensions of organizational life can be reconciled(Argyris & Schön, 1999).

There are two tensions, namely, the need to build a tangible organizational structure while simultaneously promoting an organizational culture based on intangible shared values and meanings; and the need to promote cohesive, effective collective and organizational strategies while at the same time fostering an environment for individual initiative, autonomy, and individual development.

The dimensions in the model refer to the demands between the need to formalize, objectivize, and make tangible, and on the other side to pay attention to the informal, subjective and intangible, and tensions among the need to meet organizational identity and performance objectives, while at the same time encouraging personal responsibility. This approach makes sense and it is applicable to the United States context, where it is

usually assumed that the organizational goals are more important than the individuals' personal responsibility. One example could be the decision to participate in a special project during vacation dates; an American assumption is that the managers might delay their vacations, even when they already have reservations, while a European might decide not to participate in the project in order to follow through with the already scheduled vacation. This very simplistic example illustrates how deeply a perception may be embedded in the employees.

Critics of the learning organization approach suggest that Human Resources Development is framed and used more often for a profit management concept based on the practices in the United States. There exists a lack of empirical examples of learning organization in small to medium size organizations, which are a major employer in the United States.

Knowledge Transfer in Health and Nutrition

This study addresses one of the critical problems of our time (Cooper, Hill, & Powe, 2002), the increasing rate of obesity (Ogden et al., 2006).

In Minnesota, where approximately ten percent of the state's population is living in poverty and average household incomes have dropped to a fifteen-year low, many of the state's poorest are forced to make difficult choices on a daily basis. When families are feeling pressure from a weak job market, housing foreclosures, and the rising costs of gas and groceries, it becomes nearly impossible to focus on the importance of health and nutrition (Grumbach & Mold, 2009).

Recent studies have shown, in fact, that food-insecure households are significantly more likely to serve unhealthy foods such as sugar-sweetened beverages,

and significantly less likely to serve healthy foods such as fruits and vegetables to their families.

With more than 500 thousand Minnesotans receiving Supplemental Nutrition Assistance Program (SNAP) benefits (formerly known as Food Stamps), these efforts fit neatly into Extension's century-long mission to deliver practical knowledge on a wide array of topics relating to health, nutrition, and family and community wellness to populations most in need. Funded in part by federal dollars for SNAP-Education (SNAP-Ed), educators provide information designed to increase the likelihood that persons eligible for SNAP will make healthy lifestyle and eating choices consistent with United States Department of Agriculture (USDA) dietary guidelines.

Extension Educators and Community Nutrition Educators work with participants to provide education on the role of physical fitness in a healthy lifestyle; SNAP eligibility and benefits; the importance of increasing intake of fruits, vegetables, whole grains, and low-fat/fat-free calcium rich foods and beverages; and wise food-shopping choices on a budget.

As Minnesota is comprised of diverse populations spread across urban, suburban, and rural locales, the SNAP-Ed program is faced with a unique challenge: how to deliver a quality program meeting the diverse needs of low-income populations across the state.

The University Extension System,

The land-grant universities and the USDA were established by the Morrill Act of 1862. Land-grant universities, which were commonly known as 'colleges of agriculture and mechanical arts,' primarily focus on the dissemination of agricultural and domestic or household knowledge. Prior to the passage of the 1914 Smith-Lever Act, which called

for the formation of cooperative agricultural extension to diffuse “useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same” (Morse, 2009).

In this knowledge society, where universities are considered to be in the forefront of advancing science, addressing critical issues, and maintaining relevance, knowledge creation and transfer provides a competitive edge.

Knowledge transfer is the process through which one unit (eg. Group, department, or division) is affected by the experience of another, and how knowledge acquired in one situation applies (or fails to apply) to another.

Further understanding of knowledge transfer theory and practice is critical. It is rare that people learn things in a program which applies directly to their work. The implications for community education are important, especially for program design, implementation, and evaluation. Just having knowledge that logically implies a solution to a task is not enough. One must learn how to apply that knowledge to a task in specific situations; this is the transfer of cognitive skills.

The following chapter discusses the methodology and methods followed to undertake this study.

CHAPTER THREE

METHODOLOGY AND METHODS

The research design implemented to undertake this study included a mixed method, case study design. In this chapter, the author first describes the rationale for case study methodology. Next, the appropriateness of using mixed-methods (qualitative and quantitative) to address the study question is discussed. Third, the author addresses the context and settings for this research. And finally, the strategy of sampling, data collection, and analysis process followed in this study will be discussed

Case Study Methodology

One critical consideration when selecting a research method is the alignment with the research questions or study aims. Yin defines Case Study Research as, "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (2009).

The case study research method is suitable under the following considerations: First, the study question, or objectives responds to a 'why' or 'how' kind of inquiry. As stated previously, the study question, in this case, is to understand how knowledge transfer takes effect. Second, case study methodology is preferred when researchers have very little or no control over the intervention events, or when behaviors cannot be manipulated. Third, this method is preferred when studying contemporary events in depth and in real time (Yin, 2009). Fourth, when the context and boundaries of the phenomena being study is not clearly determined or evident.

Case Study Method

Yin (2009) states that the case study method is used to compare the techniques of developing grounded theory by building greater understanding; the strength of such is that it provides better theory. Case study calls for resources and time; it is also more compelling and is therefore regarded as being more robust (Yin, 2009). Case study method must be selected carefully because it can predict similar results or contrasting results (Yin, 2009, p. 53).

Finally the replication pattern is critical for case studies. Two or more cases should be included in the study because of the prediction of similar results, in order to have confidence in the results (Yin, 2009).

Mixed Methods

There is a growing recognition of the appropriateness of integrating qualitative and quantitative research methods for stronger research designs. According to Greene and Caracelli (1997) the mixed-method "intentionally combines different methods—that is methods to gather different kinds of information" (p. 7).

Greene (2007) suggests the use of quantitative methods has contributions when responding to some kinds of research questions for which qualitative approaches are weak or there is a mismatch in either case:

> *Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the*

> *mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.* (p. 10)

Furthermore, current research complexities call for complete and greater understanding of the phenomena by using different methodologies; "a complete understanding of human nature is likely to require more than one perspective and methodology" (Reichardt & Rallis, 1994).

The philosophical debate about qualitative or quantitative methods seems stronger in academic environments. In practice it is more common to use the strength of each methodology to have a greater understanding of the phenomena being analyzed (M. Patton, 2005; MQ Patton, 1997). For example, quantitative methods allow researchers to make comparisons and predictions among cases. In qualitative research, understanding the participant's life experiences and perceptions is the primary aim (Greene, 2007). It is possible to hold valid multiple perspectives at the same time; that is acceptable (Reichardt & Rallis, 1994). Again, applied researchers would actually benefit from considering combining the two methods. Using a mixed-methods approach builds on the strengths and limitations of each method; that is, using quantitative data to compare, making inferences to generalize, and qualitative data for both accuracy and relevance.

Greene and Caracelli (1997) explain some considerations when using mixed methods including: 1) The political level that refers to the purpose and meaning of the

study; 2) The philosophical level that incorporates assumptions of the social world and our ability to know it; and 3) The technical or method level that is concerned about methods and procedures for data collection and analysis. In this regard, the philosophical aspect of mixed-method revolves around integrating the qualitative and the quantitative paradigms (Greene & Caracelli, 1997).

This study will follow the pragmatic stance (Greene, 2007, Patton, 2005) that suggests philosophical differences between paradigms and the dialectical stance which recognizes paradigms' differences, along with the belief that those differences are important, through purposefully combining qualitative and quantitative methods to achieve better understanding.

Greene and Caracelli (2007) suggest that mixed methods can integrate differences or tensions between paradigms to capture multiple meanings and perspectives, opposing emphasis of the tension regarding separate paradigms, and suggest a greater focus on paradigm characteristics of knowledge and values. In doing so, the mixing of methods from different types of inquiries is honest, "a plurality of interests, voices, and perspectives" (p. 14).

Furthermore this study includes triangulation and integration among different methods to corroborate findings. Complementary design is a "focus on combining results from studies with complementary designs to minimize study biases that derive from inherent design weaknesses." Complementary design is typified by an enhancement or clarification of the "results from a dominant method by the results of another method type." Expansion designs provide a means for "different methods used for distinct inquiry components – for example, implementation and outcome assessment" (Caracelli &

Greene, 1997, p. 23).

Thus far, we have explored two research frameworks to be used in this knowledge transfer study: Case Study Method and Mixed Methods. These approaches are appropriate when studying a case of KT. The final approach we will explore is related to utilization and participative focus. In order to understand KT it is important to consider a framework of utility and participation.

Utilization and Participative Focus

King (1998) explains how participatory study was evident and informed by the progressivism movements, applied social research developments, collaborative action research, and many others. King (1998) refers to some aspects that make a participatory study, namely, the efforts require high levels of interpersonal and organizational trust, creating a shared meaning of their experiences over time, and addressing the power structure within which they are working. It requires time (they are done slowly), and incentives are key to fostering participation process (Fetterman, 2005){King, 1998 #789}.

Utilization efforts are based on the premise that programs should be judged by their utility and actual use. It also builds on the concern of how real people in the real world apply learnings and experience. Therefore, the priority in Utilization Focus is on the intended use by the intended users (Patton, 1997).

Patton (1997) expands on the fundamental premise. A few concepts that show a strong relationship to participative focus are: The commitment to intended use by intended users should be the driving force, careful and thoughtful stakeholder analysis

should inform identification of the primary intended users. Intended user's commitment to use can be nurtured and enhanced by actively involving them in making significant decisions about the program, high-quality participation is the goal, and study personnel committed to enhancing use have a responsibility to train users.

Patton (1997) suggests the Achilles heel of participative efforts is that it requires more time of committed people to conduct such efforts, so the process depends on the active engagement of intended users'.

Patton's (1997) participative mode of inquiry is consistent with Campbell's vision regarding an "Experimenting Society." An experimenting society is defined as one where its "realization will depend on a shared commitment to engage in active reality testing by all those involved in program and policies, not just researchers." Furthermore, this approach invites stakeholders to join with the study team as informed citizens of an experimenting Global Society. Patton's (1997) vision differs from Campbell's in that Patton's is a far more overarching vision, instead of something more concrete, more individual, that "works for you," thus making the programs and studies more accountable (Campbell, 1984; MQ Patton, 1997).

Participative approaches present a perspective on empowerment, as an approach which aims toward "achieving program success by providing program stakeholders with tools for assessing the planning, implementation, and self-evaluation of their program…" (p. 28).

The study of KT that is done under these three main approaches are: Using Case Studies, Mixed Methods (qualitative and quantitative), and Utilization Focus. Program staff participate at different levels of the organization as educators; current participants,

partner agencies, and others are also involved. The variety of methods and participants gives a complete picture of the case.

It is important to keep in mind that nutrition educators in this study are eager to contribute in a study that would promote program improvements. They see this as an opportunity to open new doors and to explore future programming.

To restate the research question, to understand how knowledge is transferred from University to community, using a case study method. The unit of analysis in this project is Community Nutrition Educators (CNE's). Nutrition educators were invited to be part of the study, to share their experiences during program implementation. Participants (audience) were also invited to be part of separate interviews. Observations of program delivery "about teaching – learning" was carried out.

Study Methods

Three sources of information were gathered in this case study. The first source of data included semi-structured interviews with fifteen Community Nutrition Educators (CNEs). The interviews were arranged at two different times: 1) Before the teaching or educational delivery happened; and 2) Right after the program delivery ended. The questions were intended to elucidate how KT implementation process happens. A detail of the questions can be found in *Table 1*.

The second source of data included group interviews conducted with a small number of participants (n=3 to 5) in each setting. Open-ended interviews were intended to get at participants perception of the educational program. Lists of questions are in *Table 2.*

The third source of data included observations about the implementation. Two sets of observation were conducted in each case: 1) One observation paid close attention to program implementation and fidelity to the initial protocol or curriculum/manual; 2) The second observation captured how programming happens in real life, the flow, and to what extent the core program principles were implemented.

Interviews were tape-recorded, transcribed verbatim, and analyzed for emergent themes using NVivo 10 software. Researcher read transcripts and developed a code structure, developed new codes as they emerged from the transcripts, and identified major themes which later were organized in 4 domains. The transcripts were coded again based on final codes.

Interviews

Individual and group level interviews are preferred when there is interest in understanding participants experiencing the phenomena, as was elaborated in the literature review. In this case for this study, two sets of interviews were conducted in each study setting: 1) Interviews with the CNE were done in two stages, one before program delivery, and the second one after; 2) Short group interview with the participants.

The strength of the ability to explore the depth of a phenomenon is fundamental in this study. Interviews make this exploration possible because of the opportunity to the investigator be present during the sessions. For instance, if a question is unclear to the interviewee, the chance to clarify what is being asked helps to reach an accurate and relevant response to that question. The technique of probing is helpful to elucidate and

follow-up valuable information. In addition, interviews with a structured set of questions can gather information that is rich in content and provides greater understanding of the phenomenon. Lastly, interviews held in groups also have strengths. For an example, responses from one participant in a group can invoke a response from another participant by expanding their experiences, and in turn uncover a variety of information. The ability to save time with interviews held in groups is an additional benefit.

Strengths in Observation

The third source of data collection involved teaching and facilitation observations. Observation of a phenomenon in a systematic way has strengths in studies. Patton (2002) suggests that observations allow one to understand and capture the context first hand, in terms "essential to a holistic perspective." Seeing people interact within their context is valuable to study. Observers are there to witness the experience. Outlined strengths continue with the opportunity to view interactions that would not be reported by someone who is involved routinely in the setting. This is an advantage only to an observer that has not become completely immersed in the environment as an active participant. In comparison with an interview, the observation grants the seeing of things that would not be “talked” about otherwise. An additional strength is the ability to take a comprehensive look at the phenomenon under study, and raise new questions throughout the observational period. One last strength in the observational method according to Patton (2002) is the opportunity for reflection and introspection by the observer. This process is important for the interpretive analysis because it allows the one observing to draw personally on their knowledge of the setting.

Table # 1 Facilitator Interview

First Interview Protocol

1. What are the kinds of things do you consider when planning a session like today? Walk us through how you make decisions about the sessions and plan for them.
2. You know those moments when things are going really well…things are going smooth, participants are engaged, you felt really good about the session, etc…when you think back on those moments, what do you think made it work?
3. Can you tell us about your background, experiences, and interest…how did these things help prepare you for this job/position?
4. From your experience, what qualities and characteristics are needed to succeed in this job/position?

Second Interview Protocol

1. What were those moments in the session that you were excited about, that particularly went well?
2. Thinking back to when you were preparing for class, how did you choose to include that/those part/s? Did it go the way you planned/expected?
3. Was there anything you thought could have been done differently today?
4. Now…there is no right or wrong answer to this question. We are just trying to understand based on wisdom that comes with experience. From your experience, what do you feel is the key to getting your participants to make lasting changes to live a healthier lifestyle?
5. What are some ways to know/find out about those participants' changes?
6. Are there any components of the curriculum that you used today that could be improved or changed to better meet the needs of your participants?

Observations

The same participating CNEs were asked to be observed during program delivery.

In total fifteen cases were observed. Two trained observers (Graduate Social Science students) captured how programming happens in real time. One observer captured in detail, step by step how the program implementation happened and adherence to intended curriculum—for example the lesson, activities, reactions, and others. The second observer was attentive to a broader perspective, how the flow of knowledge happens, interactions, and to what degree the core program principles were implemented. Both observers were asked to debrief their perceptions. An observation tool was used (Appendix I), which was coded for analysis.

Table 2 – Participant Interview

Adult Participant Focus Group

When you think about your health or your family's health, what are some things you think about and want to know more about?

Let's talk a little about the class you were part of today. What interested you about the class? What were you hoping to learn?

I know how hard it is to make changes even though you know something is good for you…

a) What happens in the class that makes you want to try, and maybe practice what you learned?
b) What things would make it hard to make the changes in real life?

Youth Participant Questions

1. What was your favorite part of the class today? What was the most interesting thing you learned today?
2. Were there any parts of the class that you didn't like? Can you think of any ways the teacher could have made those parts better?
3. What are some things you learned in class that you may tell your parents or your friends about or try at home?

University of Minnesota (IRB) Human Subject Research approved this study, IRB study number 1102S96162. SNAP-Ed Implementation Evaluation (Grant Title: Minnesota Supplemental Nutrition Assistance Program Education).

Integration of the Different Sources of Information

Significance of findings in a case study involves the evaluator asking a set of questions in what is reported as a key part of the study (Patton, 2002). They are: 1) To what extent are findings coherent, and how consistent is the evidence in support of the findings? 2) To what extent do the findings increase understanding of the phenomenon studied, and how? 3) To what extent are the findings consistent with existing knowledge? 4) To what extent are the findings useful for some intended purpose? (Patton, 2002).

Along with these four guiding questions, significance of the findings will be established through what is generally referred to as validity and reliability in research. Validity refers to ensuring that what is intended to be measured is in fact being measured. Accuracy in data results is important to establishing validity. There are two aspects to validity that require attention in research: Internal and external. External validity is concerned with generalizability of the measured data to its original population. (Creswell, 2003). Internal validity is an estimate of how the causal variable caused the effect in the study. For establishing reliability, the goal in research is to create stability or consistency in the measure of results (Creswell, 2003).

Qualitative researchers feel that the process for demonstrating validity and reliability or rigor within a study can be met, but are described in terms that are more representative of their reality of research. This study uses the following rationale due to

the qualitative approach of inquiry. Creswell (2003) suggest that internal validity known traditionally in research is replaced with the term credibility, and reliability is often related to dependability (Creswell, 2003). The difference in understanding rigor for both designs lies not only in the terminology, but the ontological focus of the researcher and his or her understanding of the world. Creswell (2003), seeking rigor in qualitative research should happen throughout the entire process of a research study, and not only the methods section that quantitative research typically follows in their criteria for assessing truth and consistency. For qualitative researchers, credibility and dependability starts with the recognition of the researcher's world views, their philosophical assumptions, and their intended approach of investigation.

As stated, the term reliability is dependability. A highly dependable procedure of collecting qualitative data is one that incredible detail for the process of the data collection (Creswell, 2003). Someone wanting to conduct the same study at a different time would easily be able to do so because of the descriptive trail. Dependability is concerned about how data were collected and how conclusions were drawn. That is, documenting every step will improve dependability in the data collection procedure.

Inter-rater coding is another way to strengthen qualitative analysis. This process may be used with observations and/or interview coding. More than one rater or person will be reviewing or observing data to code on their own. A comparison between the two raters' data results will be matched and deemed dependable if consistent. This will ensure dependability and improve upon internal consistency of the coding of themes (Creswell, 2003). Trustworthiness, authenticity, and credibility are terms often used related to validity, but none the less intend to improve accuracy of data collection (Creswell, 2003).

The validity of qualitative methods is greatly improved upon by using a combination of research methods, as with the intent behind increasing reliability. The steps that researchers take to increase accuracy or internal validity include triangulation of respondents, methods, and researchers; member-checking; and also rich and deep description of findings including researcher bias clarification (Creswell, 2003).

The goal in providing evidence of trustworthiness is to show that the investigation demonstrates integrity and competence behind what is being studied. In other words, proving that scientific rigor has been attempted.

Data Analysis Overview

This study began with the selection of study cases. An invitation from the Health and Nutrition program leader to Extension Educators to suggest up to three Nutrition Educators (CNEs) using the following criteria:

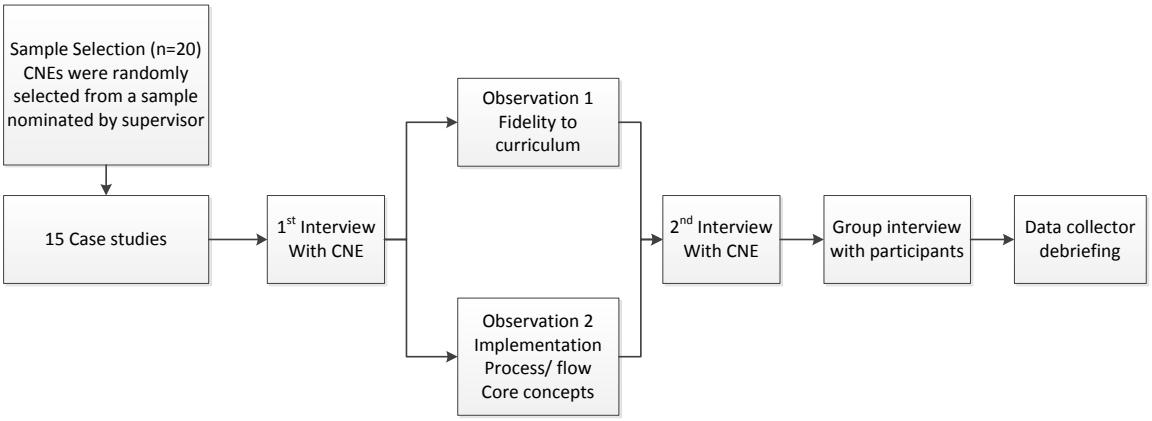
> *Name 3 CNE's in your region that are good examples of those that possess the knowledge, skills, attitude, and values needed to conduct quality SNAP-Ed Programming.*

Fifteen CNEs were randomly selected, out of those recommended by the Extension Educators

The study team connected with CNEs and arranged meetings and site visits, and coordinated interviews with participants who the CNE would invite. Parallel to this, the research team piloted the protocol and questions in sites where the study was implemented.

Interviews and observations were performed.

Figure # 2 - Flow for the implementation evaluation



The observations

Two observations were done in each of the fifteen cases by two different observers/data collectors at the same time. The first observer followed a structured instrument to assess the degree to which program components were implemented following the manual or initial program plan. The second observer captured the learning environment and to what degree core program principles were delivered. Observations were coded quantitatively. The quantitative analysis included descriptive statistics using SPSS v21.

SPSS was used to organize quantitative data so that results could be reviewed and descriptive displays created.

The interviews

Qualitative analysis of the interview transcripts across 15 cases, were carried out by researcher.

Interviews with CNE and participants group interviews were transcribed verbatim and qualitative analysis was done using Nvivo software. The content of the transcripts, this allowed the research team to organize data in nodes/codes, and connect site characteristics to data for comparison across the sites. Two researches participated in analysis. Both researcher read transcripts and developed a code structure based on the focus group questions. Themes emerged across the data. The research and advisor/mentor came together frequently to discuss and negotiate the development of new codes or themes as they emerged from the transcripts. After the research team agreed on the major themes found in this study, the transcripts were coded again based on major themes and codes.

The study emphasis improves the understanding about how knowledge transfer takes place, how it is implemented with a spirit of learning. No performance measures were included in this project.

Program Implementation Settings

Study of Knowledge Transfer occurred in different settings, including, six schools, 2 Alternative Learning Centers (ALC), 1 community center, 3 residential facility, 1 public library, 1 workforce center 1 salvation army. The audience or type of participants was related to the site, at the end out of 15 cases, 6 included youth (less than 18years old), 6 adults (18 years old to sixty), 2 seniors (sixty and older), and 1 family (including at least one parent and elementary school youth) intervention.

About the participating CNEs, all are female. The years of experience varied, in average about 9 years (SD 6.3) as CNE or related work experience.

Summary

This study effort is important at this juncture, as University of Minnesota Extension strategically supports the outreach mission of the university.

The goal of this study is to further understand how knowledge transfer is implemented in a nutrition education program. The methodology followed is a combination of Case Study using mixed methods, and involving constituents in a participative way. The critical consideration when the author selected these methods is because of the alignment with the study aims, which fits with the selection of the method to carry out the study.

The interview questions and observation protocols aim to responds to a “why” or “how”‘ type of inquiry. Furthermore, a case study method is included in the study, because it increases the confidence in the results. In this particular study, the author considers it feasible to have fifteen cases that seem realistic in this program.

Mixed method research is also aligned with the general aim of this study because the complexities call for complete and greater understanding of the implementation phenomena using different methodologies. The author believes there are multiple perspectives about the program, multiple realities in a way. Using a mixed-method approach builds on the strengths and limitations of each method there is, using quantitative data integrated with qualitative data for both accuracy and relevance, and trying a plurality of interests, voices, and perspectives.

Finally, the author believes participative focus is appropriate because the results of the study are planned to be used. It also builds on the concern of how real people in the real world apply study findings and experience to study processes. The intent of the study

is that within this experimenting society its realization will depend on a shared commitment to engage in active reality testing by all those involved in the program.

Understanding how knowledge transfer happens in this program is critical to the processes and components such as Extension agent capacities (knowledge, skills, attitudes, and values). Also critical is our understanding of how some outcomes are carried out by participants, under what conditions they seems to be applied, and for whom the education program was most effective in contributing to intended outcomes.

CHAPTER FOUR

RESULTS

The Knowledge Transfer (KT) literature continues to grow in the academic and practitioner environments. This study focuses in understanding how KT is implemented in a community nutrition education program. The context of this research is the University of Minnesota Extension, one health and nutrition program. In this study, I am able to identify essential themes that describe how knowledge transfer happens and its contributing factors.

This chapter presents the results from three sources of information: Semi-structured interviews with facilitators commonly referred as Community Nutrition Educators (CNE), participant group interviews (that followed a focus group interview format) and observation of the program implementation. The interviews were conducted following a protocol that further guided the analysis. Themes were identified, and organized into four domains including: the program content, the participant, the environment, and the facilitator. All three sources of information were incorporated in the analysis. Participants shared that participating in the nutrition program was a transformative experience that fostered positive feelings about the program content and the facilitator.

The Facilitator

Theme 1. I feel very educated through life

Facilitator experience is critical. For some educators, their lived experience enabled them to empathize with participants.

"So empathy in a limited resource family either coming from, having that in your background or certainly not being judgmental because any of us can find ourselves in that position and I guess that's it" (CNE 26). At the individual level another educator mentioned: *"I was at WIC at one point of my life when we were young and my husband was still in school and we had one child at that time and I had to be a smart shopper, it was difficult raising 5 children on, you know, my husband's income and the little bit I made doing daycare… I feel like I have some life experiences that hopefully balance out the other end" (CNE 25).*

"I've been a recipient of services…thinking about other things that have prepared me for this job (pause) that's been something that's really big too, because I've had home visitors coming into my home and working with me as a parent (CNE 34)

"But, as far as registered dietician, I'm not that … but I feel that I'm very educated … through life" (CNE 08)

Lived experience was the critical factor for quality program implementation and KT. Facilitators who experienced personal transformation had desire to give back to the community.

Theme 2. People skills

All participants felt people skills were a key for success

I have seen some CNEs that are very intelligent and they know a lot about nutrition, and… cooking, but, to get your audience motivated, and to get your participants to make some changes… you have to have some people skills (ID 08)

Facilitators enjoyed interacting with participants.

Well, you definitely have to enjoy working with people. And you have to be able to relate, well, to them not just enjoy working with them but to actually also be able to engage well with them. (CNE 14)

Facilitators with commitment who enjoyed working with participants had a passion for job.

Theme 3. Motivation and Passion for the job

I think it's helpful to just have kind of a drive and want to be out there. (CNE 34)

You have to like what you're teaching. It shows if you don't, I think. You're falling asleep in a lecture, you do, you have to, you have believe in what you're teaching (CNE 17)

Theme 4. Training Skills and Knowledge

Facilitating learning is considered an art and a science. Facilitation skills were also considered a critical factor for knowledge transfer. Facilitation is a skill that can be learned.

Even though, degree in nutrition might not be necessary I think some good basic knowledge nutrition and cooking, if somebody hates to cook and they don't like children, that's gonna hurt them. (CNE 26)

Community organizing experience helps develop facilitation skills.

Yeah, so, I knew people, or, you know, little towns where they think they know you, … I have a background in …I'm an RN [register nutritionist], and I have a really strong community organizing background, I've led, been executive directors of nonprofits, you know, led, see, I attribute that to my background that has helped me with this, the community organizing (CNE 24).

Facilitators' interest in the nutrition education field combined with life experience facilitates KT.

Always grew garden, canned, just interest in food, mom was always experimenting with new recipes (CNE 10).

Facilitators felt that other professional experiences in Extension helped them become good educators.

I think it was growing up in the 4-H program and seeing the way that Extension facilitates things. When they were having this, like, Century Conversation to celebrate 4-H's 100 years, they held a lot of discussions, and I kind of learned how to facilitate – I got to help facilitate some of those small groups as a state ambassador. So just knowing

that those Extension techniques; knowing those ways of leading discussion, and participatory consensus (CNE 23)

All CNE's felt their work is important.

I believe in the work I am doing (CNE 23).

Theme 5. General satisfaction with Extension

Educators work in Extension because of their deep sense of meaning for the work and their excitement about Extension's mission.

Well, I love the variety. I've been at this job for 19 years, and …really no two days have been the same in the whole 19 years, so that is great. (CNE 34)

I believe in the work that I'm doing, so that makes me happy. So, I'm excited to go to work every day (CNE 17).

Educators are proud to work in Extension. They feel the responsibility to represent the University of Minnesota well in the community.

First of all, I've always felt that it's a privilege to work for the University of Minnesota, I've always felt that. So I'm proud of my employer and the tools and the training and …that you have what you need to work with. I've always been proud of that (CNE 02)

Educators are encouraged by University benefits.

I'm really grateful to have my job, part of the reason, well I was a florist for a while before I got my job, and I have both of my children with no insurance. So having insurance in this job means a lot to me because my husband is self-employed, so there's no insurance there (CNE 26).

The Educators love the practice and research mission of Extension.

I studied the history of Extension in my undergrad for a special project and that's why I decided to pursue a career in Extension, because I just loved how they took research to corn farmers and empowered those farmers to make better life decisions using research (CNE 23).

I love Extension.org [online site for Extension resources], and going to search Extension.org. And you can find publications from any Extension service – Minnesota or otherwise. So I just did that to follow-up from my lesson yesterday. They had a question about fiber I couldn't answer. So I googled fiber, and somebody had fiber. West Virginia or Nevada or somebody you know. And so I could even tell them that. I love that resource (CNE 23)

However, organizational support is needed for quality program implementation.

Well, I think with paperwork there's a big gap there with getting support. And … just with … things around the office. For example, our office just moved. And, you know, it's a tremendous amount of work coordinating all that, and … kind of had to do that largely on our own… us CNEs. (CNE 34)

In many respects, educators contribute to improving the health and wellbeing of the community and enriches their own life.

Theme 6. Improve my life for the better

So, when I looked to taking this job, I thought, you know what, I'm going to learn as I go, and I'm going to help myself out and I'm going to be better mom to my kids, is what I hoped, and it's true, it's happened. (CNE 17)

Educator expressed their own personal transformation while working for Health and Nutrition.

Theme 7. I am going to be a better mom, and it's happened (CNE 17)

The facilitator played a key role in knowledge transfer. Some facilitator characteristic, capacities and qualities, contribute to quality program implementation, and transfer. Facilitators' intrinsic factors such as positive attitude, commitment towards the community educator role, and a sense of empathy are key determinates for program success. Some external factors such as organizational support to educators, training and development opportunities among others are relevant for successful programs.

The Learner

The audience is an important component in knowledge transfer. A learner centered approach to knowledge transfer recognizes learners' interests and motivations. Study participants shared their perspectives regarding the learner:

Theme 8. Engaging the learner

The Educators found different ways to engage the learner.

If I want them to increase an activity I should have done that with them. I love to jump rope myself. I'm 51 and I'm a really good at jump rope, but…modeling behavior. You know, doing it with someone. Don't tell someone what to do if you're not willing to go and do it yourself, so modeling that behavior (CNE 26)

A participant stated,

Well, my husband has a heart condition, so we have to be careful, low sodium and other things; I mean there are some things that interact with his medicine so we have to be careful with that. (Participant 14)

Educators met learners where they are at and respect them.

Everyone is my equal, I am not superior just because I know this information, doesn't mean I'm any better or any greater or anything than anyone I'm having a conversation with" (CNE 17)

The teaching and learning dynamic includes technological skills.

I would say mostly the technology, being able to take more technology into our classes more than anything probably (CNE 25).

I very much like the webinars we've been having. You know the dietary guidelines came out. Boom, right away, we had a webinar on it. I wish we would have more of those on (CNE 02).

A participant stated,

I noticed that she cuts up fruits and put it in her cereal, so she doesn't have to add sugar into it. I mean, that's for me to do, 'cause I like to add sugar into my Cheerios. (Participant 25)

Theme 9. Participants want to learn.

I think they could, the University could do a better job of training, I mean, I came to the work for the University thinking 'Oh, this is really going to be cool because I love to learn!' thinking that I am going to learn receive all this knowledge and I really haven't receive it, you know, where… take a lesson and go. (CNE 24)

Learners need facilitators that utilize a variety of teaching techniques.

Well, I do feel like we might, we're not keeping up technology wise maybe? Like, we don't each have a laptop to work with. It's even hard to be able to make color copies. A lot of people go off on this, you may as well go and make their own color copies. Because when you're working with audiences, a lot of times that colored, a colored picture up on the wall is going to show a lot, be a lot more effective than just a black and white hand out. (CNE 25)

Study participants stated the importance of understanding learners and meeting them where they are at. Furthermore, learners felt they benefited from diverse approaches and teaching techniques.

The Content

The process of determining concepts that inform program content is complex and important.

Theme 10.The relevant content

Well, first of all, it's gotta be focusing on the key messages first (CNE 02).

A participant said,

I'm kinda hooked up on exercise, so she [facilitator] really has done well with that and giving us instruction so that when we go home and do it. So I really increase, I walk everyday, but this has helped me with other stuff too. And her food, I like that too 'cause she's given us things of how to do things easy. (Participant 14)

A facilitator explained,

I guess planning. I'm a very organizing planning kind of person. If I feel that I am prepared then the class definitely goes better, versus if it was a last minute thing and I'm like, I had no time to think about this, I think it definitely goes better as well (CNE 16).

And I also go by the back of the getting to know you [form]. We have a list of topics, so I have them check those off and then I tally them, in order of importance. And

then that's what I, because I always tell groups I don't want to teach things you already know (CNE 02)

What do they want to learn? Often times, when I do adult classes I ask them at the beginning what are some topics you're interested in, because I don't want to be teaching on something that you're not. And often times, I can fit it in to those guidelines that we need, those key messages that we need to talk about. 'Cause often times those are the ones that people are interested in hearing more about anyways. So we kinda do that. I like to teach what they would be interested in or follow the curriculum that we're supposed to use. (CNE 16)

The curriculum should be adapted with the learner in mind. This requires a great deal of skill.

I kind of let the audience kind of lead me with the questions of, you know, I have my goals and my objectives that I'm promoting, but yet, I'm very flexible as far as kind of taking it where their interest is, so that we have final effect. (CNE 24)

The role of the facilitator and teacher resembles that of a moderator.

You know, I think it's kind of, I think you have to balance anyone that you're teaching with, kind of balance the different styles. 'Cause I think a lot of people learn different ways and so some people might learn the best just by listening to a story or something like that whereas someone might learn better by having a discussion and talking about it, so I think trying to do several different aspects in one class is always a good idea (CNE 24).

Facilitators determine what to teach and put ideas forward.

Theme 11. A matter of balance

I start out foundational with,… the my pyramid and food groups in every course I do because I feel that everybody needs that foundation and the dietary guidelines, I go off that in my first class (CNE 08)

But, facilitators adjust depending on learner needs and interests.

You have to go to where they're at, not where you're at, so,… I think that's really important, because you can have a lot of knowledge to tell people, but, unless they know you care, they don't care to know. (CNE 08)

The information has to be both useful and practical.

I do like our Simply Good Eating curriculum because it has a lot of hands-on activities in there… so that's what I'm always looking for when I look at a curriculum or I look at lessons. (CNE 34)

Participant sharing is integral to learning.

And I like the informal sharing times at… that happen at staff meetings, where I can pick up on what other teachers have done that work well. Hey, that fits with what I just said, you know. Observing what other people have done in their teaching. That really… that prop really helped, or that technique really helped. You know. And being able to say, 'oh my gosh, I made this black bean soup at Salvation Army and nobody ate

it. What do you guys think I could do?' You know, and being able to come to my colleagues with a question. That's a resource that's really invaluable. (CNE 23)

Planning curriculum takes time and effort.

How I actually plan – I do have a lot of curriculums that I work of. You know, whether I've gotten, you know, the University of MN-based, or there's some that we've gotten from my supervisors… you know, I'll go off of some of those curriculums. Sometimes you'll add stuff to them (CNE 30).

The resources are there, and there are some guidelines.

Well we have certain curriculums; like we're supposed to only be using science based approved curriculums. So we have certain curriculums that we can use and I've had a lot of experience doing teaching, so I know what certain lessons that work that I like to use with the age group. (CNE 16)

Theme 12. Barriers and facilitators.

There are also some constraints.

At first I was hesitant thinking, oh we're not gonna be able to be creative, we're just gonna have to do this, this, and this. But actually the curriculum helps to, for me to be more creative because I don't have so many steps, I can take the pre-written lesson plans and then create within that instead of trying to create a lesson plan and do all of that steps (CNE 14).

There is a need for organization, strategy and flexibility.

I think they need to be very organized, because like I said, we teach a wide variety of classes to different audiences and it can be teach pre-school and then turning around and going to teach senior citizens and turning around and going to teach 5th graders or something like that. So you have to be very organized ahead of time, 'cause otherwise I don't want to think the classes will be that successful (CNE 16)

Facilitators emphasize flexibility.

Holy smokes you have to be very flexible. You know, walking into a room and finding out that they don't have a stove … or it's a different group of students than you perceived or the room is too small for the group so you have to move to another room. Or the person who's supposed to be in the room with you helping with discipline doesn't show up (CNE 25)

I don't think you can be a really big control freak, because, like we saw with the two groups, the one group was able to sit still, from whatever class they had been they were able to sit still, focus easier, but then the dynamics of the next group was completely different, you know, um, you have to be able to put on seven different hats and mold and morph and, and take whatever direction it is that you need to get, if you go seven steps off the subject, you'll have to take seven or ten to get back, so, you kind of have to be flexible (CNE 17).

Be open to, be able to kind of go with the flow, as far as personalities that you get into your room. Welcoming and comments and criticism but yet being able to turn that

person in a positive direction for the good of the class, being able to work with the group, to monitor group, be a good monitor (CNE 02).

In summary, the content is critical to knowledge transfer. But, other elements are also important such as engaging the learner in the learning process, being methodical/organize when delivering the program, and being flexible.

The Environment and Context

Program implementation occurs in collaboration with partners such as community agencies and schools. Learners are served by partner agencies.

The environment is crucial.

Well, I think about the audience, the audience is women from around Minnesota that are in treatment for drugs or alcohol. I'm thinking that a lot of them are mothers; I've known that from past classes. What kinds of things do, I guess they need when they are home with their families? I mean, do they need help with how to plan a menu? Do they need help with how to stretch their food dollars? Do they know they are eligible for food stamps? (CNE 10

There are different needs at different schools.

And what I did today was only a few of the things that are in there, so you just kinda pick and choose. What I think and what I pick and choose for this school might not be the same as XX schools, there's different cultures and in between the 2, like here dancing is against most religions. So it's always physical activity, physical activity,

physical activity, it has to be, and I have to know that. When I'm in the North end of the county even XX to here. I mean not all the kids, but the majority, so if you call it that they can't participate at all. So I'm like, I don't want parents calling me or the school or anything. So it's all physical activity and marching, whatever it's going to be, to really know the schools, the people, the staff, to get to know all of them. (CNE 21)

Facilitators need to understand participants' environments.

Understanding, compassion, being able to see… what families are struggling with right now too. Being able to see that groceries expenses are getting high. Gas prices are high. If I can come up with some lesson or some recipe or something that would help them, you know, save budget-wise… things like that (CNE 09).

Study participants in this program were low income families. They faced several constraints, and their problems are multilayered, including financial, health, exclusion, and others. Understanding their environment in which they live is important for successful program implementation and knowledge transfer.

Appeal to Various Learning Styles

Programs should emphasize active, hands-on learning, and applicable skills.

Then, doing a snack after that's hands on too… It means so much more than you standing up there and saying, ok, well here's the way you save money at the grocery store, you know? So, I go through my mind many times that if we had more lessons like that were shop and save, if we have them develop, I feel that people would even learn a

lot more because they do like the activity where they can go around and answer the questions and then discuss it. (CNE 10)

Another participant said,

Yes. I would say when I first started I was really focused on the display boards and the education and more of you sit in the chair and listen to me. And just realized that maybe they can get some of things out of that but I don't think that's going to make lasting changes. They're not going to remember, maybe two minutes of what I said out of that hour. So, but if they're actually participating in it, they're gonna be much more likely to remember. (CNE 14)

Shared Experience

The social context is key to sharing experiences.

Actually, I think that they get a lot out of sharing with each other. So, I try to always kind of open that up to where, kinda like, I learn from my co-workers, they learn well from their peers, so I thought that went really well when they were sharing about where to buy the fruits and vegetables for less money. Kinda helpful tips. I've learned a lot from my seniors (CNE 14).

The importance of sharing is again emphasized.

Totally, yeah, because people do have experience, and they do have a lot of things to share and… we have some great information that we bring from Extension - Simply Good eating program – but, you know, a lot of it's just kind of what people are doing in

their own homes that … they can share about what works. You know, people will, I think, listen to that and you know, it might mean more coming from their peer vs. from me or from the University of Minnesota (CNE 34).

Personal experience

You have to care for learners lives.

Yeah. And so when I'm going there, they all ask me questions or tell me something about their personal life. You know, last time when I was doing the whole grains, one of the students got to drive his car, so of course, he wanted me to come out and look at his car. Yeah, so it took me 10 seconds to go out and look at his car or whatever but I took that time to go look at his car and say you know, cool for you, great for you, awesome. (CNE 22)

This personal interaction is crucial.

You know, those kind of things, they'll call me by name, …I guess that's the best part of my job, and that's the thing that makes lasting changes, I still think it goes back to relationship a little bit, I mean, I do keep professional boundaries, but I don't like just being a teacher, like a talking head, I like to… get people going and give them those tools and things like that, so, this is a great community (CNE 08)

Learning that extend beyond classroom

CNEs are cognizant that learners are influenced by their agency, family, and community. They address and utilize this knowledge. CNEs indirectly and directly impact the greater ecology of participants, facilitating individual/participant change.

For example as one says,

I think, to, if we could change the program so that we could involved in entire schools like this, we could be most effective… because, now in the three years, some of these classes I've done for three years now, and so I know they've tried jicama, they've tried spinach, you know, I know all these different foods that they've tried I know I taught them the basics of the food pyramid, and, each year that I come in, this stronger relationship that I have with administration and the workers, the teachers, the aides, the food service (CNE 24).

There are difficulties that arise. It is not always easy.

I think to work with the schools too, very important to work with the food service, and support them because they have a tough job. You know, they are not always, people aren't always kind about the food, the adults, I think we need the seniors are very difficult, because in the, the dining settings that I've seen them in, they are very old, they are very, they are step away from the nursing home, and so, they really are, it's a social thing, and some of them really don't, really don't care anymore, you know, like, "I'm 95, does it matter if I eat green beans?" (Laughter) You know? I mean, I can see where they are coming from, I think that there needs to be a huge improvement with the meals that are provided to the senior dining, and that there could be a dynamic program with us

working with, similar to, food service departments, working with the cooks and the people, that, the people, it, it's not, you know, that's not in place by any means (CNE 24).

This shows that CNEs are cognizant of community nutrition environment and the role of Extension in that environment. In addition, CNEs promote participant self-efficacy – empowerment and skill building that extend beyond the course into other areas of participants' lives.

Summary

This chapter describes the study results based on analysis of three data sources, including 1) semi-structured interviews with Community Nutrition Educators (CNE's), 2) participant group interviews and 3) Program implementation observations. Emergent themes were organized in four domains namely: 1. the facilitator, 2. the learner, 3. the content, and 4. the context. The program facilitator domain describes the facilitator capacities and experiences. Facilitators have a great degree of empathy because of lived experiences that are similar to the learners. Personal characteristics, including being outgoing, and passionate about what they do. The program learner domain describes their participation and engagement. This included learners' attitude, and facilitators' mindfulness that changes occur for learners in small steps. The program content domain discusses the content, including its connection to key nutrition messages based on the program implementation guidelines, the need to adapt content to fit culturally diverse learners' backgrounds and their immediate needs and interests. The emergent themes, organized in four domains, leads to discussion and conclusions in the upcoming chapter.

CHAPTER FIVE

DISCUSSION AND CONCLUSION

In this chapter, I review how knowledge transfer processes happens in a nutrition education Extension program, and further develop a framework that facilities the process of knowledge transfer including program components that contribute to transfer. I will elaborate how a different data source supports the overall framework combined to this case study. After this discussion, I reexamine the broader context in which these programs operate. Finally, I conclude with implications for practice and for theory.

The overarching themes for what made the ability for knowledge transfer to occur in the combination of facilitator experience, participant relationship with the nutrition educator, the environment or context, and content.

Facilitators integrate practical skills in program delivery, able to navigate the environmental conditions of participants, the balance program content and the relevance for participants. This is supported in the knowledge transfer and adult learning literatures. First, knowledge transfer refers to the tacit and explicit dimensions, furthermore, as Mezirow (1981) and Freire (1998) suggest, when this is grounded on experience becomes transformative at the individual and community levels.

Second, relationship among facilitator and learners is critical. The acknowledgement, equal relationship, friendliness, plays a critical role in programing. It

opens the connection for the message that is practical and empowering. Which resembles what is somewhat suggested in the education literature.

In terms of implementation of knowledge transfer, the interviews with Community Nutrition Educators (CNE) also suggested, some programs may primarily deal transfer only with explicit knowledge, which is more easily codified or manualized into a curriculum (Nonaka & Takeuchi, 1996). For knowledge transfer to happen, though, content alone is not enough; one has to know the nuances of participants' motivations for attending the program, giving some light into relevance discussion. And try to convey the message in a way that facilitates learning to participants, for transfer process to be successful. That is not to say that technical nutrition concepts are somehow more knowledge intensive; rather, health and nutrition transfer may simply involve different kinds of knowledge, including tacit knowledge, which is composed of know-how that is difficult to codify (Nonaka 1994). Nevertheless, some minimum level of technical conceptual part is needed by participants for them to create and interpret in a meaningful way. Families living under resources limitation may be unable use the detailed program content of any of the program. So skills (technical competencies) are important in all knowledge-intensive processes. Participants appreciated/called for the transfer of tacit and not just explicit knowledge.

Another finding while some cases in this study did exhibit evidence supporting the beneficial effects tight prescribed program implementation. The effect/reactions was pronounced when adapting program delivery to be attentive to immediate participant needs. One possible explanation is that for converting tacit knowledge into explicit

knowledge facilitator needs to connect/understand participant's realities to be able to motivate engagement/participation, which is value from the participants. Another possible explanation is about a complexity in knowledge transfer that is not /cannot be captured in an explicit way. The evidence from knowledge transfer process supports positive effect to behavior change and the evidence is even stronger related to health outcomes.

The theory building perspective, the four -element model is commonly explain in the adult education literature, including more factors. The study confirms the notion of four factors to consider during knowledge transfer. And raise the critical role of the facilitator and the relationship with the learner.

Implications for Extension leaders

This study effort is important at this juncture, as University of Minnesota Extension strategically supports the outreach mission of the university. The results of this research project are beneficial for the organization, educators and CNEs. The organization is at a critical time to show evidence about how quality nutrition education programming is implemented. In order to assess impact in the future is essential to know how knowledge transfer happens in real life context. Extension Educators across gained better understanding the program components and processes that contributes to the success program implementation, and might be able to replicate some of those and make adjustments to their programming in order to increase success.

The University Extension model, was the answer to the industrial revolution, it was very forward thinking at that time about the needs of communities. Food production increased, and millions were almost certainly saved from pending starvation. Even today, the University of Minnesota Extension is addressing community food and nutrition needs.

Without losing site of the ultimate program outcomes, Extension health and nutrition interventions can provide more training to CNEs related to: motivation theory, mindfulness, as well latest learning technologies, and research related to nutrition. Furthermore be more inclusive to include family, community, and systems level programs. Similar programs across the nation are incorporation policy, system and environment approaches. Currently the predominant intervention focuses at the individual level; this is, facilitators delivering a program to individuals or groups, expecting individual level outcomes. Transformative learning and popular education, suggest that transformation is also occurring, and transferring at multiple levels.

Implications/Recommendations

There is a growing interest about the integration of research and practice in health promotion interventions. In this study, the Nutrition Education Program can improve families' health and wellbeing, by motivating participants, delivering practical knowledge and skills, which in turn will lead into participant wellbeing, in diverse communities, resulting in community societal impacts.

Knowledge transfer leads to improved program outcomes. In looking at the knowledge transfer, certain tension exists between very structured "high fidelity" to standardized evidence-based curriculum and a more community learner-centered

approach. The lesson learned is related to confidence and experience of the facilitator to deliver the program.

At the core, Extension is constantly attentive to the competing demands of evidence/research base programs and community relevance. This integrating/combining delivery of evidence based curriculum as well as being attentive to relevance to the community work creates a tension with staff delivering the program. Quality of program implementation leads to improve health outcomes of our participants.

This dissertation has so far examined the internal aspect of knowledge-transfer, and also context. After all, educational scholars, and others have been reminding that context has an important role. Context matters in this study, but it is harder to control. In this study, we asked CNE their permission for us to observe one their sites. Most likely they invited us to the site in which they have a good relationship. The quality of partnership/collaboration with community organizations leads to quality programming, and in turn affect knowledge transfer.

Recommendations for Future Research

There is a growing interest in understanding knowledge transfer and translation process that bridge research and practice now days in the applied health science. But at the same time there are few studies and evidence to guide these translational efforts. Similar studies to this, focused on implementation are needed to identify other factors, and compare and contrast to the work at Extension.

Knowledge transfer face measurement challenges. The nature of knowledge, including the tacit and explicit dimensions, is abstract. The understanding of program implementation can help to determine a sort of baseline, and then capture changes in the areas of energy or in which programming happened. Measurements of change in immediate outcomes are necessary to advocate and sustain current program funding.

There are growing inequalities in our local communities, including around health and nutrition.

Limitations of the Study

The limitations of this study are three fold. First, there are few studies and current literature that addressed knowledge transfer in the context of non-profit organizations. The current understanding of the phenomena is somewhat narrow regarding to organizations such as the University settings.

The second limitation has to do with the scope of the study. This study focused in only one program, one signature program some might say, which limits its generalizability in relation to the different kinds of programs being implemented in Extension, or at the University wide. Furthermore, this study only focuses on the one unit in Extension.

Extension programs are adaptive to meet the needs and priorities of the local communities which require funding to support program implementation. In that sense the current study findings can be outdated soon after is completed. Furthermore, as this study is completed, federal funding that support SNAP–Ed has decreased.

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APPENDIX A

Interviews Protocol

Community Nutrition Educator (CNE) Interview

First Interview Protocol

5. What are the kinds of things do you consider when planning a session like today? Walk us through how you make decisions about the sessions and plan for them.

6. You know those moments when things are going really well…things are going smooth, participants are engaged, you felt really good about the session, etc…when you think back on those moments, what do you think made it work?

7. Can you tell us about your background, experiences, and interest…how did these things help prepare you for this job/position?

8. From your experience, what qualities and characteristics are needed to succeed in this job/position?

Second Interview Protocol

7. What were those moments in the session that you were excited about, that particularly went well?

8. Thinking back to when you were preparing for class, how did you choose to include that/those part/s? Did it go the way you planned/expected?

9. Was there anything you thought could have been done differently today?

10. Now…there is no right or wrong answer to this question. We are just trying to understand based on wisdom that comes with experience. From your experience, what do you feel is the key to getting your participants to make lasting changes to live a healthier lifestyle?

11. What are some ways to know/find out about those participants' changes?

Are there any components of the curriculum that you used today that could be improved or changed to better meet the needs of your participants?

Group Interview

Adult Participant Interviews

When you think about your health or your family's health, what are some things you think about and want to know more about?

Let's talk a little about the class you were part of today. What interested you about the class? What were you hoping to learn?

I know how hard it is to make changes even though you know something is good for you…

a) What happens in the class that makes you want to try, and maybe practice what you learned?
b) What things would make it hard to make the changes in real life?

Youth Participant Questions

What was your favorite part of the class today? What was the most interesting thing you learned today?

Were there any parts of the class that you didn't like? Can you think of any ways the teacher could have made those parts better?

What are some things you learned in class that you may tell your parents or your friends about or try at home?

APPENDIX B

Observation Guide

Simply Good Eating - Group Education Observation Tool

Time: _____

I. General Questions About the Class, Instructor and Participants

1. Class Topic:_____
2. Type of Site/Location:
   ☐School ☐After School ☐Alternative Learning Center
   ☐Community Center ☐Residential Facility
   ☐Other_____
3. Type of Participants: (check all that apply)
   ☐Youth ☐Teen ☐Adult ☐Senior
4. Was the primary instructor of the same race, ethnicity, or culture as the majority of the class participants?
   ☐Yes ☐No

II. Learning Environments

To what extent was the learning setting was:

	Not at All			To a great extent			NA
Sufficiently spacious given the class size?	1	2	3	4	5	6	
Comfortable (chairs, lighting, temperature)?	1	2	3	4	5	6	
A space that is dedicated to learning (e.g. not a storage room or a room that is clearly primarily for other functions)?	1	2	3	4	5	6	

III. Observation of Content and Methods Used by Instructor/Facilitator

A. Beginning/Opening
To what extent the instructor:

	Not at All			To a great extent			NA
Welcome the participants?	1	2	3	4	5	6	
Present the topic of the session?	1	2	3	4	5	6	
Allow the participants to talk about how their lives or experience relate to the topic?	1	2	3	4	5	6	

B. The Content

To what extent did the facilitator try to find out:

	Not at All				To a great extent		NA
participant knowledge about selected topic/topics?	1	2	3	4	5	6	
participants' attitudes about the topic/topics?	1	2	3	4	5	6	
participants' self-confidence to address the topic/make a change?	1	2	3	4	5	6	
participants' perceived barriers to change and/or ambivalence to change?	1	2	3	4	5	6	
what the participants think they could do to make the recommended changes?	1	2	3	4	5	6	

What are some of the main points (key messages) CNE focused on during the class?

1_____
2_____
3_____
4_____
5_____

How did the instructor/facilitator address appropriate cultural issues with the participants? (if applicable)

_____
_____
_____
_____

C. Methods Used

To what extent did the facilitator use:

	Not at All				To a great extent		NA
questions from participants as the focus of the session?	1	2	3	4	5	6	
visuals and props to illustrate and enhance the learning?	1	2	3	4	5	6	
hands on activities for participants or otherwise apply the information they were learning in a practical way?	1	2	3	4	5	6	

What percentage of the scheduled class time was spent on the following activities? (should total 100%)

% Instructor talking
% Participants talking
% Hands on activities
% Instructor asking questions
% Participants asking questions
% Other

IV. Instructor/Facilitator's Style

How did the instructor engage participants?

_____

_____

To what extent did the facilitator:

	Not at All				To a great extent		NA
Encourage participants to ask questions during the class?	1	2	3	4	5	6	
Use reflective listening skills for participants input and questions?	1	2	3	4	5	6	
Create an overall class atmosphere that was fun and energetic?	1	2	3	4	5	6	
Use a teaching style that listened to participant's needs and emphasize positive behavior changes?	1	2	3	4	5	6	

Observer's additional comments about the class observation:

_____

_____

V. Closing

At the close of the session, thank the participants for letting you listen and observe. You should explain that you learned a lot by watching how Simply Good Eating is conducted and that Extension will use this information to help the program serve its participants better.

After the participants leave, you should thank the instructor/facilitator for allowing you to sit in and provide some feedback that highlights strengths and positive aspects of the session if possible.

APPENDIX C

IRB Approval Letter

Study Number: 1102S96162

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
Office of the Vice President for Research

D528 Mayo Memorial Building
420 Delaware Street S.E.
MMC 820
Minneapolis, MN 55455

Office: 612-626-5654
Fax: 612-626-6061
E-mail: irb@umn.edu or ibc@umn.edu
Website: http://research.umn.edu/subjects/

03/01/2011

Ghaffar A Hurtado
UM Ext Family Development
Room 495 CofH
1420 Eckles Ave
St Paul, MN 55108

RE: "SNAP-Ed Implementation Evaluation (Grant Title: Minnesota Supplemental Nutrition Assistance Program Education)"
IRB Code Number: **1102S96162**

Dear Dr. Hurtado:

The Institutional Review Board (IRB) received your response to its stipulations. Since this information satisfies the federal criteria for approval at 45CFR46.111 and the requirements set by the IRB, final approval for the project is noted in our files. Upon receipt of this letter, you may begin your research.

IRB approval of this study includes the SNAP-Ed Community Nutrition Educator consent form, SNAP-Ed student consent form, parent consent form and the assent form, all dated February 25, 2011.

The IRB would like to stress that subjects who go through the consent process are considered enrolled participants and are counted toward the total number of subjects, even if they have no further participation in the study. Please keep this in mind when calculating the number of subjects you request. This study is currently approved for 100 subjects. If you desire an increase in the number of approved subjects, you will need to make a formal request to the IRB.

For your records and for grant certification purposes, the approval date for the referenced project is February 23, 2011 and the Assurance of Compliance number is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003). Research projects are subject to continuing review and renewal; approval will expire one year from that date. You will receive a report form two months before the expiration date. If you would like us to send certification of approval to a funding agency, please tell us the name and address of your contact person at the agency.

As Principal Investigator of this project, you are required by federal regulations to inform the IRB of any proposed changes in your research that will affect human subjects. Changes should not be initiated until written IRB approval is received. Unanticipated problems or serious unexpected adverse events should be reported to the IRB as they occur.

The IRB wishes you success with this research. If you have questions, please call the IRB office at 612-626-5654.

Sincerely,

Christina Dobrovolny, CIP
Research Compliance Supervisor
CD/ks

CC: Arthur Brown, Alisha Hardman, Ju Hur, Mary Marczak, Laura Perdue, Ebony Ruhland, Kyu Jin Yon

Assent Form (Student)

We are asking if you would like to agree to be part of a study to help us understand the Nutrition program. Because you are taking Nutrition classes, we would like to hear from you about what you are learning and how you feel about the program. We hope that the program is able to help kids and families make healthy choices. This study will help us find out how we can make the program better.

If you agree to be in this study, we will ask you to answer a few questions about the program and what you've learned.

The interview questions should not be upsetting for you to answer. But, if you don't feel comfortable, you can choose to not answer any question.

All of your answers will be kept private. Your name will not be included with any of your answers to the questions.

Even after you agree to be in the study, you are free to change your mind. You will not get in any trouble at school. Being in this study is totally up to you. No one will be mad at you if you don't want to do it.

You can ask any questions that you have about this study. If you have a question later that you didn't think of now, you can ask us at any time.

Signing here means that you have read this paper or had it read to you and that you agree to be in this study. If you don't want to be in this study, don't sign. Remember, being in this study is up to you. No one will be mad at you if you don't sign this or even if you change your mind later.

_____	_____	_____
Please print full name	Signature	Date
_____	_____	_____
Principal Investigator	Signature of PI	Date

Consent Form (Adults)

You are invited to participate in a project to evaluate the Simply Good Eating program. You were selected as a possible participant because you are taking a Simply Good Eating class. We ask that you read this form and ask any questions you may have before agreeing to be interviewed.

This project is being conducted by Ali Hurtado, University of Minnesota Extension.

Background Information

The purpose of this study is to understand how Simply Good Eating materials are being taught and what aspects of a class make it successful. The information gathered will help us to improve future classes.

Procedures

If you agree to be interviewed, we will talk to you for about 30 minutes after class. Questions will be about your thoughts on the class and what you learned.

Risks and Benefits of being in the Study

There are no known risks to participating in the study. There are no direct benefits to you for participating.

Compensation:

You will receive a small gift such as measuring cups or other cooking utensils as compensation for your time.

Confidentiality

The records of this project will be kept private. In any sort of report we might publish, we will not include any personal information. Records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study

Participation in this study is voluntary. Your decision whether or not to participate will not affect your ability to receive Simply Good Eating funds or education. If you decide to participate, you are free to not answer any question or stop at any time.

Contacts and Questions

The researcher conducting this study is Ali Hurtado. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Ali at 612-624-2709 or hurt0033@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature:_____

Date: _____

Signature of Investigator:_____

Date: _____

Parent/Guardian Consent Form

Your child is invited to be in a study to help us evaluate the Simply Good Eating program. It will show us how the materials are being taught and what makes a class successful. Your child was selected as a potential participant in the study because he or she is receiving Simply Good Eating programming at school. After reading the following you can 1) choose to let your child participate in the study, or 2) choose to not let your child participate. Either way, please send the form back with your child to their school. Please note that if we don't hear from you, your child will be allowed to participate in the interviews.

The study is being conducted by Ali Hurtado, University of Minnesota Extension.

Background Information

The purpose of this study is to understand how Simply Good Eating materials are being taught and what aspects of a class make it successful. The information gathered will help us to improve future classes.

Procedures

If you agree to have your child participate in the study, we would ask your child to talk to us for about 30 minutes after a Simply Good Eating class. Questions will be about what your child learned in class and their opinions of the class.

Risks and Benefits of being in the Study

The interview questions are of minimal risk to the respondents, focusing on their opinions of the class and what they learned. There is no direct benefit for your child for participating in the study.

Compensation

Your child will receive a small gift, such as pencils or other small school supplies as compensation for their time.

Confidentiality

All records of this study will be kept private. In any sort of report we might publish, we will not include any personal information. Records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study

Participation in this study is completely voluntary. Your decision whether or not to have your child participate will not affect you or your child's current or future relations with the University of Minnesota or your child's school. If you decide to have your child participate, your child is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions

The researcher conducting this study is Ali Hurtado. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Ali at 612-624-2709 or hurt0033@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

Statement of Consent

I have read the above information. I have asked questions and have received answers.

_____ I consent to my child's participation in the study.

_____ I DO NOT consent to my child's participation in the study.

Signature of parent or guardian: _____ Date:_____

Signature of Investigator: _____ Date: _____

Consent Form-CNE

You are invited to participate in a project to evaluate the Simply Good Eating program. You were selected as a possible participant because you are a Community Nutrition Educator who conducts Simply Good Eating classes. We ask that you read this form and ask any questions you may have before agreeing to be interviewed.

This project is being conducted by Ali Hurtado, University of Minnesota Extension.

Background Information

The purpose of this study is to understand how Simply Good Eating materials are being taught and what aspects of a class make it successful. The information gathered will help us to improve future classes.

Procedures

If you agree to be interviewed, we will talk to you for about 30 minutes before and after one of your classes. Questions will be about the content of class, how you prepare for class, and what makes a class successful.

Risks and Benefits of being in the Study

There are no known risks to participating in the study. There are no direct benefits to you for participating.

Compensation:

You will not be compensated for your participation in this study.

Confidentiality

The records of this project will be kept private. In any sort of report we might publish, we will not include any personal information. Records will be stored securely and only researchers will have access to the records.

Voluntary Nature of the Study

Participation in this study is voluntary. Your decision whether or not to participate will not affect your job status. If you decide to participate, you are free to not answer any question or stop at any time.

Contacts and Questions

The researcher conducting this study is Ali Hurtado. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Ali at 612-624-2709 or hurt0033@umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature:_____ Date: _____

Signature of Investigator:_____ Date: _____

APPENDIX D

Descriptive Statistic for Observation Tool

Descriptive Statistic for Observation Tool Frequencies (*N=15*)

To what extent did the facilitator?

Not at al =1 – To a great extent = 6

Descriptive Statistics			
	N	M	SD
1. Questions from participants as the focus of the session?	13	4	1.47
2. Visuals and props to illustrate and enhance the learning?	15	5.8	0.41
3. Hands on activities for participants or otherwise apply the information they were learning in a practical way?	15	5.2	1.01
Valid N (listwise)	13		

Descriptive Statistics			
	N	M	SD
1. Encourage participants to ask questions during the class?	15	4.8	1.01
2. Use reflective listening skills for participants input and questions?	15	5.07	1.28
3. Create an overall class atmosphere that was fun and energetic?	15	5.47	0.83
4. Use a teaching style that listened to participant's needs and emphasize positive behavior changes?	13	4.92	1.38
Valid N (listwise)	13		